

The Scope of Open Licences in Cultural Contents

*preliminary draft*¹

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⁴<http://creativecommons.org/licenses/by-nd/3.0/>

Abstract

This paper aims to explore the impact of *ex-ante* legal status of licensor on *ex-post* open licence choice. It first describes the emergents open licences in Open Cultural Contents production, the so called Creative Commons Licenses. It introduces the two open models of diffusion and production, followed by creators. This paper presents an empirical analysis of the impact of legal status of creators on open licence choice using an original database created from the Internet Archive. The results show the existence of two models that the licensor have to balance when he decided the licence. The results also show that the *For Profit* agents need to use a more open licence to benefit from the intrinsic motivations of community.

1 Introduction

For more than 150 years the dominant model to produce cultural contents was the so called *industrial model*. It was structured around high costs and high volumes of physical goods and diffusion through mechanical instruments such as telegraph, radio, video, movie, record, television, cable, cinema and satellite systems.

Due to the *technological shock* induced by new technologies and Internet, inexpensive instruments, as computers and digital video and audio systems, are currently able to perform most physical capital functions without substantial investments. Therefore users nowadays are able to overcome the economics barriers and create new and innovative contents.

The economic literature suggests that users start to invest skills, money and time to produce new contents in order to satisfy their needs, when physical capital cost for fixation and communication is low and widely distributed and then the possible information is treated as a common good (Benkler, 2002; von Hippel, 1988, 2005). Under this conditions new production models start to emerge and allow new creators, with different needs and motivations, to create and diffuse their contents in digital environment.

Following the different needs and motivations of new creators, new formal institutions emerge to regulate rights about contents. The most know and studied are the formal institution of the *Free Libre Open Source Software* (FLOSS), the so called *Open licences* and its link among different motivations, as *signalling incentives*, hence *career concern incentives* and *peer recognition* (Tirole and Lerner, 2002; Lerner and Tirole, 2004) and different scope by communities and firms (Bonaccorsi and Rossi, 2003; Bonaccorsi, 2004; Rossi and Bonaccorsi, 2005; Lerner and Tirole, 2005).

The two main characteristics of FLOSS are the cooperation between users and the disconnection of production from diffusion, therefore, is usually freely available and in any case everyone can use and modify under the terms of related

licenses.

Because of the different characteristics of different products and creators in digital environment, it seems to be necessary to study and analyse the dynamic also in different industries from the software industry.

As in FLOSS, also in *Open Cultural Content* (OCC) new *Open licences* to regulate rights about contents were created. The most frequently used licences in OCC productions, are the so-called Creative Commons (CC) licences (Lessig, 2001, 2004). The CC licenses are directly derived from the FLOSS licences, particularly the GNU/General Public Licence. The CC licences were created to offer the possibility to the artists to share, re-mix and disseminate their creations.

The aim of this paper is to investigate the determinants of open content licences choice. Particularly we want to investigate the determinants of those licences from the point of view of both production and diffusion.

For the purpose of our study an original data base of *Open Movies*, in other words movies under CC licences, has been created. The paper first explores the various considerations about the emergent *open licences* and the related open diffusion and diffusion models. It shows the different characteristics of the most used licences in *open cultural content* production, the so called *Creative Commons* licences. It highlights the characteristics of both *open diffusion* and *open production* models caused by those licences. Following the literature about the restrictiveness of property rights in informal (REFERENCES) and the literature about the diffusion and production under *open licences* (REFERENCES), as in FLOSS, we test the classical hypothesis that for-profit creators, also in case of adoption of *open model*, are more likely to use both restrictive licences.

The paper then presents an empirical analysis of different movies produced and distributed under some *open* licence. To do the analysis an original dataset of 999 items from the Internet Archive (IA) was created. IA is an archive of cultural contents, particularly used in case of *open contents*, then contents under Creative Commons licences, storage. Indeed also CC tools and website suggest

to use it.

We focus on two critical characteristics of these licences:

1. Whether the licence grants to users the possibility to use and diffuse the content without any fee. We call it *open diffusion*. It is possible to have two degree of OD:
 - More open: The licence allows users to re-distribute also for commercial purposes.
 - Less open: The licence do not allows users to re-distribute also for commercial purposes.
2. Whether the licence grants or not to users the possibility to modify and re-use part or all the content as raw material, to create a new content. We call it *open production*.

We also focus on four critical characteristics of creators:

1. Whether the legal status is *For-profit*. We suggest that in this case the creator is not able to benefit from intrinsic motivations of community.
2. Whether the legal status is *Non-profit*. We suggest that in this case the creator is more able to benefit from intrinsic motivations of community.
3. Whether there were not any legal status (*Informal*).
4. Whether the legal status is *Public* organization. We suggest that public organization are more likely to use non restrictive licences.

2 The Legal Foundations of Open Cultural Contents

According to common and civil law, any cultural content created by some author is automatically under copyright.

The first act that recognised the legal right of authorship was the *Statute of Anne* signed in 1709 by Queen Anne in the Kingdom of Great Britain (now United Kingdom). The Statute established the author as legal owner and provided a 21 year copyright term to books already in print. The Statute was created to encourage public learning and to regulate the book trade, giving the the monopoly of copy books, and so to sell it, to the editors. The title of the act, and so the goal, was: “*An Act for the Encouragement of Learning, by vesting the Copies of Printed Books in the Authors or purchasers of such Copies, during the Times therein mentioned*”. Since now the main goal of copyright is not changed, indeed according to the *World Intellectual Property Organisation* the purpose of copyright is: “*To encourage a dynamic creative culture, while returning value to creators so that they can lead a dignified economic existence, and to provide widespread, affordable access to content for the public*”.

According to the *World Intellectual Property Organisation*¹ *Performances and Phonograms Treaty*² is possible to split the copyright in two main rights:

- *moral rights* - Art. 5(1): “*Independently of a performer’s economic rights, and even after the transfer of those rights, the performer shall, as regards his live aural performances or performances fixed in phonograms, have the right to claim to be identified as the performer of his performances, except where omission is dictated by the manner of the use of the performance, and to object to any distortion, mutilation or other modification of his performances that would be prejudicial to his reputation*”.
- *economic rights* - Art.s 6(1), 7, 8(1), 9(1) and 10(1): “*Performers shall enjoy the exclusive right of authorizing, as regards their performances*”, “*the direct or indirect reproduction*”, “*the making available, ... through sale or other transfer of ownership*”, “*the commercial rental*” and “*the making available, ... in such a way that members of the public may access them from a place and at a time individually chosen by them*”, “*to the*

¹<http://www.wipo.int>

²http://www.wipo.int/treaties/en/ip/wppt/trtdocs_wo034.html#P94_9977

public of the original and copies of their performances ”.

By licensing the cultural content under some licence, creator could decide the part of copyright that he wants to grants to other users.

According to the Creative Commons website³, Creative Commons (CC) licenses are several copyright licenses released on December 16, 2002 by Creative Commons, a U.S. non-profit corporation founded in 2001 by Lawrence Lessig. Creative Commons is headquartered in San Francisco, California, United States and is devoted to expanding the range of creative works available for others to build upon legally and to share.

All the CC licences grant the freely diffusion to all future users.

The details of each of these licenses depends on the version, and comprises a selection of four conditions:

1. *Attribution* (by): Licensees may copy, distribute, display and perform the work and make derivative works based on it only if they give the author or licensor the credits in the manner specified by these.
2. *Non Commercial* (nc): Licensees may copy, distribute, display, and perform the work and make derivative works based on it only for noncommercial purposes.
3. *No Derivative Works* (nd): Licensees may copy, distribute, display and perform only verbatim copies of the work, not derivative works based on it.
4. *Share Alike* (sa): Licensees may distribute derivative works only under a license identical to the license that governs the original work.

We notice that not all the combination are allowed, indeed the “nd” and “sa” clauses are mutually exclusive.

By using the different combinations of clauses of *Creative Commons* licence, he could decide to grants to other users the right to copy, to modify and to make money.

³<http://creativecommons.org/>

In *Open Contents* production, *Open Licences* represent the formal institution. Using this formal institutions, creators could not only cooperate, but also encouraging and reinforcing cooperative behaviour (Lerner and Tirole, 2005; Lyubareva, 2010).

To represent the characteristic of *property rights* we use the literature about management of commons in natural environment (Ostrom, 1990; Ostrom et al., 1999; Schlager and Ostrom, 1992), already used in case of FLOSS environment (Lyubareva, 2010).

According to this literature we have five rights organized in two groups: *use* and *control* rights (Schlager and Ostrom, 1992):

1. *Use rights*

- *Access*: The right to enter a defined physical area and enjoy nonsubtractive benefits.
- *Withdrawal*: The right to obtain resource units or products of a resource system.

2. *Control rights*

- *Management*: The right to regulate internal use patterns and transform the resource by making improvements.
- *Exclusion*: The right to determine who will have access rights and withdrawal rights, and how those rights may be transferred.
- *Alienation*: The right to sell or lease management and exclusion rights.

3 Open Diffusion and Production Models

By using *Open Licences*, then *Creative Commons* licences, creators decides to keep different degrees of *control* or *use* rights, so two different new property-rights regimes seems to emerge and co-exist: *Open Production* and *Open Diffusion*.

With *Open Production* (OP) we identify the characteristic of the content to be produced in a cooperative model, independently from the control of the initial creator. It means that the licensor decide to reduce or completely lose the *use* and *control* rights.

With *Open Diffusion* (OD) we identify the characteristic of the contents to be freely diffuse. In other word the creator decides to reduce or completely lose the *use rights*. The creator could also decides to reduce or not the *control rights*. When creator keeps the *control rights* we only have a strict *Open Diffusion*, hence we do not have *Open Production*.

It is evident that in order to have *Open Production*, we should have also *Open Diffusion*. Without *Open Diffusion* it is impossible to have *Open Production* because of the fact that a blocked diffusion block “per se” the possible cooperation and contributions among users. On the contrary, the fact that the production is closed do not impact on the diffusion process, so we can have *Open Diffusion* without *Open Production*, but not the opposite.

Moreover it is possible to have different degrees of restrictiveness of both *Open Production* and *Open Diffusion* and according with the above-mentioned relationship between production and diffusion of *Open Contents*, the restrictiveness in diffusion have effect in production process, but is not true the opposite.

To be able to adopt OD or OP model OCC creators use a particular set of licences, that allow them to define the degree of openness in both diffusion and production process.

To do that the most used licences are the Creative Commons (CC) licences. Hence it is possible to distinguish two different models:

1. *Open Diffusion* (OD): the creator gives up *use* rights only. He could decide to gives up also *alienation* rights of *exclusion* right, just for non commercial purposes by other users. In other words the creator grants the diffusion of the content to other users, sometime only for non commercial purposes, but not the possibility to modify it, re-use and cooperate.

2. *Open Production* (OP): the creator gives up *use* and *control* rights. So he grants the possibility to re-use their contents as raw material to create new contents. The creator could decide to grant it only for non commercial purposes by other users. The creator could also decide to start a *viral* mechanism that oblige future users that will use his original content as raw material to grant the same rights to other users. In other word, the creator grants the diffusion, reproduction and the possibility to modify the content to other users. Moreover the creator could use a OP because of its decision to re-use material already published under OP model with a “viral” clause.

The following table shows the six regularly used licenses plus the Public Domain. It shows also if they allows openness (+) or not (-) in OP and/or OD:

Table 1: Open Models

Licence	Right shared	Model
<i>Public Domain</i> (PD)	<i>Use + Control</i> without any restriction	+OD +OP
<i>Attribution alone</i> (by)	<i>Use + Control</i> without any restriction	+OD +OP
<i>Attribution + Noncommercial</i> (by-nc)	<i>Use + Control</i> only for noncommercial purposes	-OD +OP
<i>Attribution + NoDerivs</i> (by-nd)	<i>only Use</i>	+OD -OP
<i>Attribution + ShareAlike</i> (by-sa)	<i>Use + Control</i> only under the obligation to reuse the same licence	+OD +OP
<i>Attribution + Noncommercial</i> <i>+ NoDerivs</i>	<i>only Use</i> only for noncommercial	-OD -OP

Continued on next page...

... table 1 continued

Licence	Right shared	Model
(by-nc-nd)	purposes	
<i>Attribution + Noncommercial</i>	<i>Use + Control</i>	-OD +OP
<i>+ ShareAlike</i>	only for noncommercial	
(by-nc-sa)	purposes and under	
	the obligation to reuse	
	the same licence	

The goal of this study is to explore the impact of the legal status of creators on the use of both *Open Diffusion* OD and *Open Production* OP models. The OD model is related to the “diffusion” of contents and to the limitation of “use rights” (access and extraction) of producers, i.e. the possibility to share the contents among different agents. The Op model is related to the “production” of open contents and to the limitation of “control rights” (management, exclusion and alienation). Therefore, the OP model allows the using of a cooperative production model, by loosing the control of the final product.

4 Hypothesis

The standard property right theorist approach (REFERENCES) claims that only the regime of private property rights provide sufficient motivation for creators to produce contents. This implies the attenuation of property rights cause economic inefficiency.

An alternative approach considers the existence of alternative incentives to extrinsic monetary motivations. Indeed, in case of attenuation of property rights and of extrinsic monetary motivations, *intrinsic motivations* incentive people to participate to the creation of contents (Valentinov, 2007; Tirole and Lerner, 2002). According to this approach it is possible to organise the motivations in two main groups:

1. *Extrinsic*

- *administrative commands* (Valentinov, 2007): obligation by management of firm;
- *monetary* (Valentinov, 2007): to earn money.

2. *Intrinsic*

- *activity itself* (Valentinov, 2007): just enjoy to play the activity itself;
- *ego gratification* (Tirole and Lerner, 2002): to be incentivated to produce to be proud of himself;
- *reputation* (Tirole and Lerner, 2002): to show their capability to others, so they can be proud of you;
- *signalling* (Tirole and Lerner, 2002): to show their capability to firms, hoping in a future job;
- *peer recognition* (Tirole and Lerner, 2002): to show their capability or interest, to be accepted by a group.

Non Profit agents are more able to benefit from *intrinsic motivations* of people and community such as in case of crowdfunding, crowdsourcing, volunteering, etc (REFERENCES : Belleflamme 2010, Kappel, Ghatak & Mueller 2010). We argue that *For Profit* agents need to use more open *open licences* to benefit from *intrinsic motivations* of people and community.

The *intrinsic motivations* compensate a lower salary and incentive volunteering and donations. All these *intrinsic motivated* kinds of support are generally not available to *For Profit* creators. In case of *For Profit* the principal motivation instruments are the *extrinsic motivation* (Valentinov, 2007).

We organise licensors in four different groups:

1. *For profit*: a for profit creator is a creator that operates primarily to make money, then he is more able to benefit from *extrinsic motivations*.

2. *Non profit*: In contrast, a no profit creator is a creator that focuses primarily on social, cultural, or political goals rather than on making profits, then he is more able to benefit from *intrinsic motivations*.
3. *Informal*: They do not declare any legal status. They do not show any real organization and so they can not collect money from government or community or stay in the market. They do not really have a real business model.
4. *Public Administrations*: They usually are forced by law to use Public Domain or in general not restrictive licences.

5 Main questions

We want to agree the existence of both *Open Diffusion* and *Open Diffusion* models.

We want to test if the legal status of the licensor impacts on the choice of both *Open Diffusion* and *Open Diffusion* models.

6 Data Collection

To explore the link between *formal institutions* and *motivations* of creators in OCC production we have created an original database of observations about videos under CC licences, starting from the subsection “Open Source Movies” hosted on Internet Archive (IA).

According to its website⁴, the IA is a non-profit digital library, founded in 1996, operating in the United States with the stated mission: “universal access to all knowledge”. It offers permanent storage and access to collections of digitized materials, including websites, music, moving images, and books. IA is a member of the American Library Association and is officially recognized by the State of California as a library. The IA began to archive the World Wide

⁴<http://www.archive.org>

Web from 1996, but it did not make this collection available until 2001. IA includes texts, audio, moving images, and software. To use IA as storage is also suggested by CC tools and website, particularly under the process to put some content under some CC license.

Internet Archive collects less than 102000 videos under the subsection "Community Videos", but only 27.939 provided detailed information of the CC license⁵. Some observations were dropped for the purpose of this study as they do not provide detailed information on creator or publisher or year of creation or year of publication. Because the first set of CC licences were created in December 2002, we dropped the observations about videos created and/or published before the 2003.

This selection has resulted in a sample of 999 observations.

7 Variables

Contents in our sample were published under some CC licence (or under Public Domain) by different licensors with different legal status. We distinguish among four groups of creators, the *for profit* creators, more influenced by *extrinsic motivations*, the *non profit* creators, more influenced by *intrinsic motivations* and the *informal* creators that could be influenced by both extrinsic and intrinsic motivations, but in contrast they are less organized than *for profit* and *non profit*, so they do not really have a real business model based on "open model" production and diffusion, so they are more "conservative" and so they will use a more restrictive regime. Moreover the *legal status* give us also information about the *internal organization*. To do that we checked the juridical status of each creator. After that we checked the different clauses of CC licences. At the end we checked the year of publication of each observation. Following the list of all variables created for this study:

Open Production. This variable represent the openness of the production

⁵last check on February 2010

process. In other word, it indicates if the producer accepts or not to loose the control of the production process, so allowing others to modify his product. It represent the openness of future cooperative production. We distinguish between licences that allow modification (CC by-sa, CC by-nc-sa, CC by, CC by-nc) and licences that do not allow modification (CC by-nc-nd, CC by-nd). We code OP as a dummy variable where “1” indicates that the “control rights” are limited, this means that users can cooperate and re-use the created contents as raw material. It is important to remember that all the observation, so under OP or not, are always under Open Diffusion.

Open Diffusion. This variable checks the *Non Commercial* clause. It represents the decision of licensor to give up rights in front of all users (1) or just in front on Non Commercial proposition by users (0). Then it represents the degree of *Open Diffusion*.

Informal. This dummy variable check the absence of any legal status.

For Profit. This dummy variable check the for profit legal status (i.e. firms)

Non Profit. This dummy variable check the non profit legal status (i.e. foundations)

Virality. This dummy variable check the *Share Alike* clause. It represent the decision of licensor to oblige (1) or not (0) future users to reuse the same license when they reuse his contents. We introduce it as a control variable, because to share the same level of rights of others in the future may be important for the adoption of the particular model of production and diffusion.

time. This variable represent age of each content on the database. We include it as control variable because Creative Commons licences are new and the state of its diffusion may be important for the choice of a particular model

of production. In other words the diffusion of CC licences may influence other creators to start to adopt it.

ln_download. This variable represent the logarithmic download per time.

The goal of this study is to show that the *ex-ante* declared organization, the so called *legal status*, as significant impact on *ex-post* choice of openness of licence, in both aspect of diffusion and production.

Our hypothesis are:

- Licensor that use a more open licence in production will compensate using a less open licence in diffusion and vice-versa.
- To benefit from soft incentives of community, Licensor with For-Profit legal status needs to compensate using a more open licence in both aspects, production and diffusion.

8 Results

8.1 Descriptive Results

In our database 833 contents (83.38 %) were published under a permissive *Open Production* (OP) model, so without No-Derivative-Works (ND) clause, it means that is possible to modify, re-mix and use the original material as raw material to create new contents. 166 contents (16.62 %) were published under restrictive OP model, so with ND clause, it means that is not possible to re-use the material and create derivative works.

841 contents (84.18 %) were published under permissive *Open Diffusion* (OD) model, it means that it is possible to freely re-distribute and commercialise the contents. 158 contents (15.82 %) were published under restrictive OD model, it means that it is possible to re-distribute the contents just for non profit purposes.

284 contents (28.43 %) were created by *Informal* agents, 252 (25.23 %) by *For Profit* agents, 141 (14.11 %) by Non Profit agents and 322 (32.23 %) by Public administrations.

Table 2: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.
OpenProduction	0.834	0.372	0	1
OpenDiffusion	0.842	0.365	0	1
LicenseOP	2.783	1.456	1	5
LicenseOD	2.775	1.447	1	5
Virality	0.357	0.479	0	1
Informal	0.284	0.451	0	1
For_Profit	0.252	0.435	0	1
Non_Profit	0.141	0.348	0	1
Public	0.322	0.468	0	1
ln_download	4.735	2.32	0	12.414
time	2.193	1.164	1	6
N	999			

The following table shows the percentage of different Status among the contents under restrictive (0) or permissive (1) both OP and OD models:

Status	OpenProduction				OpenDiffusion				Total	
	(0)	%	(1)	%	(0)	%	(1)	%		
Informal	78	27.46 %	206	72.54 %	89	31.34 %	195	68.66 %	284	28.43 %
For_Profit	27	10.71 %	225	89.29 %	41	16.27 %	211	83.73 %	252	25.23 %
Non_Profit	54	38.30 %	87	61.70 %	25	17.73 %	116	82.27 %	141	14.11 %
Public	7	2.17 %	315	97.83 %	3	0.93 %	319	99.07 %	322	32.23 %
									999	100 %

Because of Public Administrations are usually obliged by law to share the property rights with the citizens⁶, it is not surprising that the majority of the contents produced by Public Administration were published under permissive CC licences or PD using open OP (97.83%) and open OD (99.07%) models.

21.13 % of contents published by *Informal* agents, 49.60% of contents published by *For Profit* agents, 11.35% of contents published by *Non Profit* agents and 48.45% of contents published by *Public* agents were under some kind of CC licence with *Share Alike* (SA) clause. In CC licence SA clause obliges the users to re-distribute the content (and the derivative work eventually) under the same CC licence decided by the original licensor. As previously mentioned, only *Non Profit* agents less commonly use SA clause. This result can be easily explained by the fact that they more often use a restrictive OP model, that exclude any possible SA clause.

Because of CC licences are recent is not surprising to observe among the whole database the number of contents under CC licences increasing during the time.

The following table shows the correlation analysis of our variables.

⁶i.e. in U.S.A. according to Federal Copyright Act contents produced by the Federal Government can not be copyrighted

Table 4: Correlation

	OD	OP	Vir	ld	t	I	FP	NP	P
OD	1								
OP	-0.171***	1							
Vir	-0.0374	0.333***	1						
ld	-0.161***	-0.232***	0.0639*	1					
t	-0.00820	-0.132***	0.0449	0.781***	1				
I	-0.268***	-0.184***	-0.192***	0.391***	0.233***	1			
FP	-0.00723	0.0921**	0.168***	0.000768	0.0858**	-0.366***	1		
NP	-0.0213	-0.236***	-0.206***	0.0439	-0.0574	-0.255***	-0.235***	1	
P	0.281***	0.268***	0.183***	-0.411***	-0.262***	-0.435***	-0.401***	-0.280***	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

It is important to remark that *Open Production* and *Open Diffusion* are negatively correlated, this means that the openness of OP model is negatively correlated with the openness of OD model, suggesting that whether a licensor decides to be permissive in one model, he prefers to be restrictive with the other.

Openness in *Open Production* is negatively correlated with the age of the contents (*time*), suggesting that new contents are more licensed under OP model.

The *Virality* is positive correlated with the openness in OP model, suggesting that whether a licensor decide to allows other users to create derivative works, it compensate by forcing other users to re-use the same licence and so to allows future users to re-use the derivative works.

The *downloads*⁷ are negatively correlated with both openness in OP and OD models. It suggest that the more downloaded contents are also the less open in diffusion and production.

Openness in *Open Diffusion* model is negatively correlated with *Informal* agents. Openness in *Open Production* is negatively correlated with *Informal* and *Non Profit* agents and it is positively correlated with *For Profit* agents. Both openness in OD and OP are obviously positively correlated with *Public* administration. Moreover the *Virality* is positively correlated with *For Profit*

⁷ld = ln_downloads = log[(downloads * time)+1]

agents and *Public* administrations and is negatively correlated with *Informal* and *Non Profit* agents. This confirms that agents that decided to use openness in both model OP and OD compensate by using the *Virality* clause, the so called *Share Alike* clause, to force other users to allows future users to re-use/re-distribute the contents, like in a “viral” system.

8.2 Regression Results

8.2.1 Impact of Legal Status on Open Production

To explore the impact of the legal *Status* of licensor on *Open Production* openness, logistic regression was conducted. We also estimate the impact of *Open Diffusion* openness, on *Open Production* openness. To avoid any possible heteroskedastic problem, we have used robust variables estimation.

The results of the regression are showed as proportional odds ratio in the following table. In all regressions we examine the robust type of standard error reported.

Table 5: Logistic Regression Results - Odds Ratio

	(1)	
	OpenProduction	
OpenDiffusion	0.0351***	(0.0213)
ln_download	0.797**	(0.0639)
time	1.244	(0.166)
Informal	0.0527***	(0.0251)
For_Profit	0.178***	(0.0806)
Non_Profit	0.0367***	(0.0166)
<i>N</i>	999	
Log lik.	-332.5	
Chi-squared	144.2	
p_value	0	
Standard Error	Robust	

Exponentiated coefficients; Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The values of Wald Chi-Square and the p-value indicate that our model is statistically significant.

According to the results, the openness in *Open Diffusion* has significant

negative impact on openness in *Open Production*. It suggests that the two models (OP and OD) are separated. It suggest also that when a licensor decide for an open OP model he is more likely to use a restrictive OD model and vice-versa. In other words it suggests that an attenuation of property right in diffusion control is compensated by an increasing of property right in production openness (and vice-versa).

The variable *ln_download*, so the number of downloads, has a negative impact on the openness in *Open Production*, it means that more downloaded contents are less likely to use an open OP model. However its influence is less appreciable then other variables.

The variable *time*, so the age of any content, do not has any significant impact.

To avoid the multicollinearity problem we drop one variable concerning the legal status of the licensors. We decide to drop the *Public* variable because we know that Public Administration are more likely to adopt an open OP model.

The variables *Informal*, *For-Profit* and *Non-Profit* have a significant negative impact on openness in *Open Production*, but *Informal* and *Non-Profit* have a more negative impact than *For-Profit*. It suggests that when *For-Profit* agents decides to use an OP model, they are more likely to use an open OP model.

We argue that *For-Profit* agents that would benefit from crowdfunding, crowdsourcing and more in general using “soft incentives” of community, need to compensate their showed “extrinsic motivations” using a more open OP model.

8.2.2 Impact of Legal Status on Open Diffusion

To explore the impact of the legal *Status* of licensor on *Open Diffusion* openness, logistic regression was conducted. We also estimate the impact of *Open Diffusion* openness, on Open Production openness. To avoid any possible heteroskedastic problem, we have used robust variables estimation.

The results of the regression as proportional odds ratio are showed in the following table.

Table 6: Logistic Regression Results- Odds Ratio

	(1)	
	OpenDiffusion	
OpenProduction	0.0323***	(0.0198)
Virality	0.853	(0.198)
ln_download	0.738***	(0.0570)
time	2.033***	(0.327)
Informal	0.0149***	(0.00961)
For_Profit	0.0441***	(0.0278)
Non_Profit	0.0311***	(0.0198)
<i>N</i>	999	
Log lik.	-315.1	
Chi-squared	111.1	
p_value	0	
Standard Error	Robust	

Exponentiated coefficients; Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The values of Wald Chi-Square and the p-value indicate that our model is statistically significant.

The results of the regression are showed as proportional odds ratio in the following table. In all regressions we examine the robust type of standard error reported.

Open Production has negative impact on response variable. This is coherent with the previously regression when OP was response variable. It confirms that an attenuation of property right in production openness is compensated by an increasing of property right in diffusion control. It also confirms that two different “open” models OP and OD operate in case of OCC production.

We introduce the variable *Virality* to check the “Share-Alike” clause, but it is not statistically significant.

The variable *ln_download*, so the number of downloads, has a negative impact on the openness in *Open Diffusion*, it means that more downloaded contents are less likely to use an open OD model. However its influence is less appreciable then other variables.

The age of the content, the variable *time*, has a significant positive impact

on openness in *Open Diffusion*. It means that old videos are more likely to use an open OD model.

To avoid the multicollinearity problem we drop one variable concerning the legal status of the licensors. We decide to drop the *Public* variable because we know that Public Administration are more likely to adopt an open OD model.

The variables *Informal*, *For_Profit* and *Non_Profit* have a significant negative impact on openness in *Open Diffusion*, but *Informal* and *Non_Profit* have a more negative impact than *For_Profit*. It suggests that when *For_Profit* agents decides to use an OP model, they are more likely to use an open OP model.

9 Conclusions

In this paper we have analysed the impact of the legal status on openness of emergent *Creative Commons* licences in both production and diffusion. With our empirical study we argue the existence of two different emergents *open* models: the *Open Diffusion* and the *Open Production* model.

According to the classical "property rights" literature (REFERENCES), *for profit* agents should be more likely to use restrictive licence in both production and diffusion model. However our results suggest the opposite. Our empirical study shows that when *For Profit* agents decide to adopt an "alternative" open model by using the *Creative Commons* licences, they are more likely to use a more open licence in both production and distribution. We interpret this founding as the result of the intent of *For Profit* to benefit of *intrinsic motivation*. In other words *For Profit* agents decide to adopt more open licences to get advantage from communities and people motivated by *intrinsic motivations* and then they became able to get advantage from crowdfunding, crowdsourcing, volunteers, to motivate workers to work with less salary, etc.

This version of the paper leaves a number of issues open. Therefore future investigations are still necessary. Particularly we need to better formalize the framework and our hypothesis. Moreover we need to better formalize the reasons

because *For Profit* agents decides to use open licences and investigate on their business strategies.

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